

## **REMARKS**

Claims 1, 6-20 and 23-26 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 103**

Claims 1-2, 6-8, 15-21, 23-24, and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukano (JP 63141750) in view of Watanabe (U.S. Pat. No. 4,484,199). This rejection is respectfully traversed.

Independent Claims 1 and 20 call for a judging means that:

judges that a cause of an ejection failure when it is judged that the ejection failure is occurring;

judges that an air bubble has intruded into a cavity in the case where a subtraction result is smaller than a first threshold;

judges that a liquid in the vicinity of a nozzle has thickened due to drying in the case where the subtraction result is larger than a second threshold; and

judges that paper dust is adhering in the vicinity of an outlet of the nozzle in the case where the subtraction result is smaller than the second threshold and larger than a third threshold.

To accomplish the foregoing, the number of pulses of the oscillation signal for a predetermined time period during normal ejection operation is set as a reference value. Then, the number of pulses of the oscillation signal generated by the residual vibration is subtracted from the reference value sequentially. A cause of the ejection failure such

as an air bubble intrusion, a thickened liquid due to drying, and a paper dust adhering is determined based on the subtraction result (the number of remaining pulses) at the time of the termination of the predetermined time period. Claims 1 and 20 both recite this feature.

In contrast with the claimed invention described above, and as admitted by the Examiner, Fukano (JP-A No. 63-141750) does not disclose or suggest subtracting means which subtracts the number of pulses, which are included in the signal generated by the oscillation means for a predetermined time period, from a predetermined reference value.

Further, with regard to Watanabe (USP No. 4,484,199), Applicant respectfully submits that the description of Watanabe (in Column 3, Line 65 – Column 4, Line 8) referred to by the Examiner simply states that "the number of the pulse signals is counted, and if the number of the counted value does not match the number of nozzles, a jet failure signal is given". This reference does not disclose or suggest the feature of the claimed invention described above.

For at least the reasons stated above, Applicant respectfully submits that independent Claims 1 and 20, as well as claims 2, 6-8, 15-19, 23-24, and 26 depending therefrom, are not obvious. (Claim 21 is cancelled.)

Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukano (JP 63141750) as modified by Watanabe (U.S. Pat. No. 4,484,199) as applied to claim 1 above, and further in view of Yamaguchi et al (U.S. Pat. No. 5,379,061). This rejection is respectfully traversed.

Claim 3 is cancelled and its subject matter is incorporated into claim 1. With regard to Yamaguchi (USP No. 5,379,061), Applicant respectfully submits that the description of Yamaguchi (in Column 6, Lines 26-33) referred to by the Examiner simply states that a cause of the ejection failure is determined based on the time difference between the operations of the recovery button 27. This reference also does not disclose or suggest the feature of the claimed invention described above.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukano (JP 63141750) as modified by Watanabe (U.S. Pat. No. 4,484,199) as applied to claim 1 above, and further in view of Noyes et al (U.S. Pat. No. 6,364,452). This rejection is respectfully traversed.

Claim 4 is cancelled and its subject matter is incorporated into claim 1. With regard to Noyes et al., Applicant respectfully submits that the description of Noyes et al. (in Column 6, Lines 26-33) referred to by the Examiner simply discloses that a maximum pulse width is used for pulse width modulation. This reference also does not disclose or suggest the feature of the claimed invention described above.

Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukano (JP 63141750) as modified by Watanabe (U.S. Pat. No. 4,484,199) and Noyes et al (U.S. Pat. No. 6,364,452), as applied to claim 1 above, and further in view of Yamaguchi et al (U.S. Pat. No. 5,379,061). This rejection is respectfully traversed.

Claim 5 is cancelled and its subject matter is incorporated into claim 1.

Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukano (JP 63141750) as modified by Watanabe (U.S. Pat. No. 4,484,199) as

applied to claim 1 above, and further in view of Fujii et al (U.S. Pub. No. 2001/0007460).

This rejection is respectfully traversed.

Claims 9 and 10 depend from claim 1 and should be allowable for at least the same reasons as set forth above.

Claims 11 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukano (JP 63141750) as modified by Watanabe (U.S. Pat. No. 4,484,199) and Fujii et al (U.S. Pub. No. 2001/0007460), as applied to claim 1 above, and further in view of Shingyohuchi et al (U.S. Pat. No. 6,811,238). This rejection is respectfully traversed.

Claims 11 and 12 depend from claim 1 and should be allowable for at least the same reasons as set forth above.

Claims 13 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukano (JP 63141750) as modified by Watanabe (U.S. Pat. No. 4,484,199) and Fujii et al (U.S. Pub. No. 2001/0007460), as applied to claim 1 above, and further in view of Shingyohuchi et al (U.S. Pub. No. 2002/0036667). This rejection is respectfully traversed.

Claims 13 and 14 depend from claim 1 and should be allowable for at least the same reasons as set forth above.

Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukano (JP 63141750) as modified by Watanabe (U.S. Pat. No. 4,484,199) as applied to claim 1 above, and further in view of Yamaguchi et al (U.S. Pat. No. 5,379,061) and Noyes (U.S. Pat. No. 6,364,452). This rejection is respectfully traversed.

Claim 22 is cancelled and its subject matter is incorporated into Claim 20.

Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukano (JP 63141750) as modified by Watanabe (U.S. Pat. No. 4,484,199) as applied to claim 1 above, and further in view of Fujii et al (U.S. Pub. No. 2001/0007460), Shingyohuchi (U.S. Pat. No. 6,811,238), and Shingyohuchi (U.S. Pub. No. 2002/0036667). This rejection is respectfully traversed.

Claim 25 depends from claim 20 and should be allowable for at least the same reasons as set forth above.

#### **CONCLUSION**

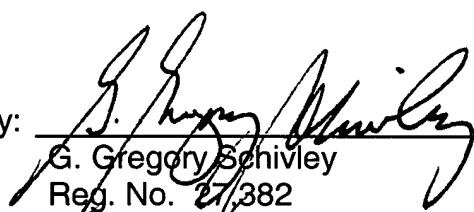
It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: Dec 13, 2006

By: \_\_\_\_\_

  
G. Gregory Schivley  
Reg. No. 27,382  
Bryant E. Wade  
Reg. No. 40,344

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

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